

GP/1624

**TRANSMITTAL LETTER**  
(General - Patent Pending)Docket No.  
01005-00

In Re Application Of: Ram B. Gupta, Hargurpreet Singh and Russell C. Cappadona

Serial No.  
09/964,919Filing Date  
September 27, 2001Examiner  
V. BalasubramanianGroup A Unit  
1624

TECH CENTER 1600/2900

JAN 28 2002

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Title: Novel Red-Shifted Triazine Ultravioletlight Absorbers

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

Transmitted herewith is:

**Response to Restriction Requirement**

in the above identified application.

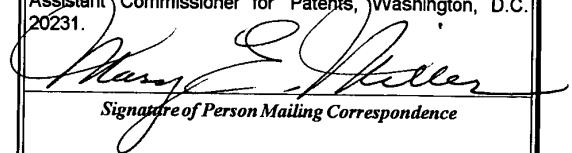
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Dated: December 17, 2001

**Cytec Industries Inc.**  
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Signature of Person Mailing Correspondence**Mary E. Miller**

Typed or Printed Name of Person Mailing Correspondence

CC:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Ram B. Gupta *et al.*

Application No.: 09/964,919

Filed: September 27, 2001

For: Novel Red-Shifted Triazine  
Ultravioletlight Absorbers

Group Art Unit: 1624

Examiner: V. Balasubramanian

Docket: 01005-00

Date: December 17, 2001



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**RESPONSE TO RESTRICTION REQUIREMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20321

Sir;

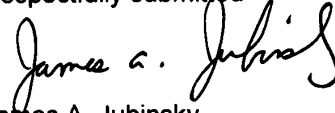
In response to the restriction requirement in the Office Action dated November 26, 2001, Applicants respectfully elect the examination of product Claims 1 to 11 of Group I with traverse.

The claims in Group I are drawn to triazine compounds of formula I, III, IV, V and VI. The claims in Group III are written in multiple dependent claim format and depend on the triazine compounds in Group I. Therefore, Group III claims are not an independent invention, but are a subcombination invention under MPEP §806.05(b). Restriction is not proper when a subcombination (i.e., the triazine compounds) is novel. Therefore, Applicants respectfully submit that the restriction for Group III claims should be withdrawn if the triazine compounds of Group I are found novel.

With respect to Group II claims, the PTO is respectfully asked to take notice of MPEP 821.04, and acknowledge that the non-elected Group II process claims of the present application will be rejoined if the elected Group I product claims are allowable and if the non-elected process claims include all the limitations of the product claims. This is a matter of right as long as the process claims are present before final rejection, as they are in the instant application, according to MPEP §821.04.

No fee is believed due for the submission of this response. Should any fee be required, please charge Deposit Account No. 03-4083.

Respectfully submitted



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**EXAMPLES**

The following non-limiting examples are merely illustrative of the preferred embodiments of the present invention, and are not to be construed as limiting the invention, the scope of which is defined by the appended claims.

**Example 1.**

Test samples were prepared as follows: Irganox 1010 (0.5 g), an antioxidant, Irgafos 168 (1.0 g), a phosphite as a processing stabilizer, and zinc stearate (0.25 g) were dry blended with LLDPE (low density polyethylene) and the UV stabilizers listed in TABLE 1. The resulting formulations were compounded at 175EC on a one and one quarter inch single screw extruder, and converted to tensile bars by injection molding at 200EC with a mold temperature of 60EC. The tensile bars were exposed in an Atlas Ci65 WOM with water spray, and elongation at break was measured as a function of time. The results, which are provided as the percent elongation at break, are provided in TABLE 1, where an elongation of less than 50 percent is considered failure.

**TABLE 1**

Formulation	0 hrs.	4,000 hrs.	6,000 hrs.	8,000 hrs.	10,000 hrs.	12,000 0 hrs.	14,000 0 hrs.	16,000 hrs.
Chimassorb 944 (0.3%) <sup>1</sup>	514	551	486	361	218	118	67	46
Tinuvin 622 (0.3%) <sup>2</sup>	509	226	152	61	43			
Cyasorb7 UV 3346 light stabilizer (0.3%) <sup>3</sup>	501	548	479	410	301	90	85	45

Cyasorb7 UV 3346 light stabilizer (0.2%) Cyasorb7 UV 1164 (0.03%) <sup>4</sup>	502	570	483	440	411	442	527	402
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1. N,N-bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexane diamine,polymer with  
2,4,6-trichloro-1,3,5-triazine and 2,4,4-trimethyl-1,2-pentamine
2. Dimethyl succinate polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol
- 5 3. Poly[(6-morpholino-s-triazine-2,4-diyl)]  
[2,2,6,6,-tetramethyl-4-piperidyl]imino]-hexamethylene  
[(2,2,6,6,-tetramethyl)-4-piperidyl]imino]
4. A compound of formula (IV), where R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup> and R<sup>13</sup> are all methyl, and R<sup>14</sup> is  
C<sub>8</sub>H<sub>17</sub>.

10

As can be clearly seen from the data, the composition light stabilized by the invention is far superior to the prior art compositions, providing protection from UV light for as long as 16,000 hours, at which point the composition still maintains 80 percent of its initial elongation. In contrast, the elongation at break for the compositions light stabilized by the prior art compositions begins to dramatically decrease after exposures to UV light of only 4,000 to 10,000 hours, with failure, i.e., less than 50 percent elongation at break, occurring at 10,000 to 16,000 hours.

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**Example 2.**

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The ability of the light stabilizing compositions disclosed in U.S. patent No. 4,619,956 to Susi ("the '956 patent") to protect polymeric materials from degradation on exposure to UV light was compared to that of the compositions of the present invention. The '956 patent exemplifies the effect of prolonged exposure of polymeric materials to UV light, where each sample of polymeric material contains equal amounts of a light stabilizing compositions comprising a triazine light absorber of formula

25